

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/29886

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12Q 1/68  
US CL : 425/6

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 425/6

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	SHAW et al. Comparison of the changes in global expression of Escherichia coli induced by four bactericidal agents. date. J. Mol. Microbiol. Biotechnol.. 2003, Vol. 5, No. 2, pages 105-122, entire document.	1-3, 5-9, 12-16, 19, 20-22
Y	BELCHER et al. The transcriptional responses of respiratory epithelial cells to bordetella pertussis reveal host defensive and pathogen counter-defensive strategies. PNAS. 05 December 2000, Vol. 97, No. 25, pages 13847-13852, entire document.	1-22
Y	HENSEL et al. Simultaneous identification of bacterial virulence genes by negative selection. Science.. 21 July 1995, Vol. 269, pages 400-404, entire document.	1-22

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"B" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

13 May 2005 (13.05.2005)

Date of mailing of the international search report

23 JUN 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. 571.273.8300

Authorized officer

Heather G. Calamita

Telephone No. 571.272.1600

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## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:  
Please See Continuation Sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
- Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

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## BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group 1, claim(s) 1-12, drawn to a method for detecting changes in gene expression of multiple distinct organisms.

Group 2, claim(s) 13-22, drawn to a method for analyzing gene expression of multiple distinct organisms coexisting in a sample.

The inventions listed as Groups 1 and 2 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The inventions listed as Groups 1 and 2 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The methods of at least claim 1 is not joined to the methods of at least claims 13 and 21. The methods of at least claim 1 is drawn to detecting changes in gene expression of multiple distinct organisms. This is not a special technical feature which joins the claimed inventions because Belcher et al. (PNAS, 2000) teach detecting changes in gene expression of multiple distinct organisms (epithelial cells and the bacteria *B. pertusis*). The methods of at least claims 13 and 21 are not limited in scope so as to require the methods of at least claim 1, and therefore are not joined to at least claims 13 and 21 by a special technical feature.

Continuation of B. FIELDS SEARCHED Item 3:

Medline, Science Direct

pooled sample, mixed infection, gene expression, cross species hybridization